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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/586,414

Filing Date: July 19, 2006

Appellant(s): KANGA, RUSTOM S.

Jennifer A. Calcagni, Esq.  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed May 30, 2008 appealing from the Office action mailed December 7, 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,413,699 B1	KANGA	07-2002
5,262,275	FAN	11-1993
5, 798,019	CUSHNER ET AL	08-1998

Art Unit: 1795

3,619,601	GUSH	11-1971
3,615,450	WERBER	10-1971
6,180,325	GELBART	01-2001
6,664,999	OHBA ET AL	12-2003
5,686,230	NELLISSEN	11-1997
6,766,740	WIER	07-2004
3,217,625	TRUMP	11-1965
3,645,179	KAROL	02-1972
3,645,178	SPEICHER	02-1972
4,868,090	KITAMURA ET AL	09-1989
2,791,504	PLAMBECK, JR.	12-1952
1,986,052	FERREE ET AL	08-1933

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

- I. Claims 6-10 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over KANGA in view of FAN and CUSHNER ET AL further in view of GUSH ET AL, WERBER, GELBART and OHBA ET AL further in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER.

KANGA teaches appellants' photosensitive printing element and method of making a hollow cylindrical printing sleeve with the exception of the formation of a hollow cylindrical support and the use of collimated light for actinic radiation and wherein the light rays emanation

form the source of light strike the photosensitive printing element at a substantially perpendicular angle to the arcurate surface.

With respect to making the hollow cylindrical printing sleeve up to the point of using the collimated light in the instant methods, the following is made obvious in the prior art. KANGA discloses as prior art FAN. FAN teaches that a cylinder can be used in column 11 as a support and CUSHNER ET AL teach the formation of FAN systems on cylindrical seamless cylinders. KANGA teaches the need when backflashing the plates such as those of FAN that a substrate of 85-95% absorbing actinic radiation is needed in order to get an even floor formed for good printing. FAN teaches the advantage of avoiding the need for a negative being formed by using the ablatale coverlayers to form a mask *in situ* on the plate to be imaged. CUSHNER ET AL teaches the formation of seamless printing cylinders to avoid the bumps formed when solid plates are adhered to cylinders to form an arcurate surface. The formation of the plates of KANGA into the seamless cylinder of CUSHNER et al using the ablatale materials of FAN (1) in order to avoid all the unnecessary steps involved in forming a negative for imaging the photopolymerizable layer and (2) to obtain a more perfect printed image without a bump would have been obvious to one of ordinary skill in the art for the reasons given.

In FAN, see particularly columns 2, 10, and 11. In CUSHNER ET AL, see particularly columns 16-17 and 21-22. In KANGA, see particularly ABSTRACT, THE FIELD OF THE INVENTION, the paragraph bridging column 1 and 2, column 2, line 49, to column 3, line 46, column 6, line 27 to column 7, line 30, column 6, lines 15 - 50, and columns 2 - 3.

With respect to the use of collimated light to image any printing plates such as those of KANGA ET AL or those made obvious as set forth from KANGA ET AL as addressed above,

the imaging of relief plates with collimated light sources is well known in the relief printing plate art in order to form a finer image. WERBER teaches the use of such for this reason. In WERBER, see particularly column 11, line 23-26, col. 13, lines 35-41, column 14, lines 7-62. GUSH teaches the use of collimated light in column 5. GELBART teaches using a reflector to collimate the exposure light in column 1, lines 41-53 and column 2, lines 49 to column 3, lines 17 and Figure 2, number 37. OHBA ET AL teach using collimator lens to image a printing plate on a cylinder in the abstract, and summary of the invention. Thus, in order to obtain finer images and to avoid light scatter, the use of a collimated light source to image the cylinders set forth in the above paragraph with regard to KANGA, FAN and CUSHNER ET AL would have been *prima facie* obvious to form a finer image when using a mask even if that mask were formed *in situ* as in the instant processes by ablation.

With respect to the use of collimated light such that the beams hit photosensitive printing element at an angle that is substantially perpendicular to the surface of the surface to be imaged whether photosensitive printing element or other at the point of impact in order to form a finer image, such is known in the prior art as well. NELLISSEN teaches the use of collimated light being bent and bounced off a rounded mirror to achieve such an effect for an cylindrical surface as well as other non flat surfaces. In NELLISSEN, see particularly Figure 2, column 1, lines 60-68, column 2, lines 26-39, column 3, lines 3-6, 17-35, column 5, lines 30-50, column 6, and lines 15-24. WIER teaches the use of a collimating filter between the ultraviolet light source, i.e. an example of actinic light source, and the panel to receive the light such that the light falls onto the plate in substantially parallel rays of light in order to form a sharp clear image. WIER does not disclose other than flat surfaces but does teach the known desire to have the light hit the surface

as close to perpendicular as possible for sharp clear images. In WIER, see particularly Summary of the Invention and column 4, lines 17-28. TRUMP teaches the use of a plurality of tubular ports, passages or openings through a layer between light and surface to be imaged in order to collimate the light forming parallel light to the film path which is cylindrical in the TRUMP device. TRUMP is not imaging a printing plate but instead silver images but for the same reason of obtaining sharp images on an arcurate surface. SPEICHER and KAROL teach the use of collimated or non-divergent light to image the surface of a photoresist cylinder at an angle perpendicular to the arcurate surface either within the cylinder or outside the cylinder by using a mirror to bounce the light into the proper angle. See in both SPEICHER and KAROL, Figures 2 and 3, and in SPEICHER, see particularly column 2, lines 20-48. In KAROL, the imaging can occur from the outside of the cylinder by using an outside conical mirror whose axis also lies on the axis of the cylinder as found in lines 35-49 of column 2.

Thus, with respect to instant claims 6-10 and 13-14, the collimation of light as well as the use of such in a manner as to strike the surface to be imaged of an arcurate surface in order to form a finer image is known in the art as discussed above; therefore, the use of such exposure for the same art recognized purpose of sharpened images when exposing the cylinders made obvious from the plates of Kanga into the seamless cylinder of CUSHNER et al using the ablative materials of FAN (1) in order to avoid all the unnecessary steps involved in forming a negative for imaging the photopolymerizable layer and (2) to obtain a more perfect, i.e. finer, printed image without a bump would have been obvious to one of ordinary skill in the art as combining prior art elements according to known methods to yield predictable results. Whether the surface to be struck is flat or of other shape, the desire to collimate the light being used for imaging in

order to form the finest of image when using a mask, whether formed off plate or on plate would have been obvious as would the desire to hit the point of image to be formed as at a perpendicular an angle as possible at all points of image.

II. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over KANGA in view of FAN and CUSHNER ET AL further in view of GUSH ET AL, WERBER, GELBART and OHBA ET AL further in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER as applied to claim 6 above, and further in view of KITAMURA ET AL in view of PLAMBECK, JR. and FERREE ET AL.

There is no disclosure in KANGA, FAN or CUSHNER ET AL to exposing the entire surface of the photosensitive printing element to actinic radiation at one time. However, such is known in the art as taught by KITAMURA ET AL in COLUMN 11, lines 3-42. With respect to instant clam 12 the use of such a quick exposure instead of a scanning exposure would have been *prima facie* obvious to save time in imaging the surface of the cylinder and collimating the light used for exposure in a method such as that set forth by WIER, TRUMP or NELLISSEN would have been *prima facie* obvious to obtain sharper images and as combining prior art elements according to known methods to yield predictable results of finer image.

III. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over KANGA in view of FAN and CUSHNER ET AL further in view of GUSH ET AL, WERBER, GELBART and OHBA ET AL further in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER further in view of KITAMURA ET AL as applied to claim 12 above, and further in view of in view of PLAMBECK, JR. and FERREE ET AL.

The combination of KANGA, FAN and CUSHNER ET AL in view of KITAMURA ET AL do not teach the use of the collimators having first and second opposing major faces and comprising at least one cell that extends from the first major face to the second major face, wherein at least one surface substantially absorbs actinic radiation incident upon the surface and actinic radiation passes through the collimator before reaching the photopolymerizable printing sleeve. However, PLAMBECK JR. taught that if lines formed were broadened excessively because of their fineness then the use of a light controlling baffle, e.g. an egg-crate baffle, could be used to eliminate those rays below the minimum desired angle. In PLAMBECK, JR., see particularly col. 4, lines 57-69. An egg crate baffle is described by FERREE ET AL in Fig 6, a device for eliminating the glare and having intersecting baffle plates parallel to the focal axis and preferably of considerable width. The baffle plates preferably have dull finished surfaces, i.e. non light reflecting surfaces. Thus, with respect to the desire to obtain a finer image in the formation of relief plates then the use of a devise such as the egg crate baffle taught by PLAMBECK, JR. to control the angle of light, i.e. collimate the light, in imaging the cylinders of FAN and CUSHNER ET AL would have been prima facie obvious as combining prior art elements according to known methods to yield predictable results of finer images.

IV. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over KANGA in view of FAN and CUSHNER ET AL further in view of GUSH ET AL, WERBER, GELBART and OHBA ET AL further in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER as applied to claim 14 above, and further in view of PLAMBECK, JR. and FERREE ET AL.

As to the methods and plates set forth by the combination of FAN, KANGA and CUSHNER ET AL above, the use of a collimated light source is not taught. However, PLAMBECK JR. taught that if lines formed were broadened excessively because of their fineness then the use of a light controlling baffle, e.g. an egg-crate baffle, could be used to eliminate those rays below the minimum desired angle. In PLAMBECK, JR., see particularly column 4, lines 57-69. An egg crate baffle is described by FERREE ET AL in Figure 6, a device for eliminating the glare and having intersecting baffle plates parallel to the focal axis and preferably of considerable width. The baffle plates preferably have dull finished surfaces, i.e. non light reflecting surfaces. Thus, with respect to the desire to obtain a finer image in the formation of relief plates then the use of a devise such as the egg crate baffle taught by Plambeck to control the angle of light, i.e. collimate the light, in imaging the cylinders of Fan and Kushner would have been *prima facie* obvious as combining prior art elements according to known methods to yield predictable results of finer images.

V. Claims 16-17 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over FAN in view of CUSHNER ET AL further in view of PLAMBECK, JR. and FERREE ET AL and in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER. FAN teaches that a cylinder can be used in column 11 as a support and CUSHNER ET AL teach the formation of FAN systems on cylindrical seamless cylinders. CUSHNER ET AL teaches the formation of seamless printing cylinders to avoid the bumps formed when solid plates are adhered to cylinders to form an arcurate surface. What is not taught within FAN and CUSHNER ET AL is the use of a collimated light source for exposing the photopolymerizable layer. However, PLAMBECK, JR. taught that if lines formed were broadened excessively because of

their fineness then the use of a light controlling baffle, e.g. an egg-crate baffle, could be used to eliminate those rays below the minimum desired angle. In PLAMBECK, JR., see particularly column 4, lines 57-69. An egg crate baffle is described by FERREE ET AL in FIGURE 6 which is a device for eliminating the glare and having intersecting baffle plates parallel to the focal axis and preferably of considerable width. The baffle plates preferably have dull finished surfaces, i.e. non light reflecting surfaces. Thus, with respect to the desire to obtain a finer image in the formation of relief plates then the use of a devise such as the egg crate baffle taught by PLAMBECK, JR to control the angle of light, i.e. collimate the light, in imaging the cylinders of FAN and CUSHNER ET AL would have been *prima facie* obvious as combining prior art elements according to known methods to yield predictable results to form finer images when forming printing cylinders . With respect to the use of collimated light to image any printing plates such as those of FAN whether cylindrical or not in form, WERBER teaches the use of such for this reason. In WEBER, see particularly column 11, line 23-26, column 13, lines 35-41, and column 14, lines 7-62. GUSH teaches the use of collimated light in column 5. GELBART teaches using a reflector to collimate the exposure light in column 1, lines 41-53 and column 2, lines 49 to column 3, lines 17 and FIGURE 2, number 37. OHBA ET AL teach using collimator lens to image a printing plate on a cylinder in the ABSTRACT, and SUMMARY OF THE INVENTION. Thus, in order to obtain finer images and to avoid light scatter, the use of a collimated light source to image the cylinders set forth in the above paragraph with regard to Kanga, Fan and Cushner et al would have been *prima facie* obvious.

With respect to the use of collimated light such that the beams hit photosensitive printing element at an angle that is substantially perpendicular to the surface of the surface to be imaged

whether photosensitive printing element or other at the point of impact in order to form a finer image, such is known in the prior art as well. NELLISSEN teaches the use of collimated light being bent and bounced off a rounded mirror to achieve such an effect for an cylindrical surface as well as other non flat surfaces. In NELLISSEN, see particularly Figure 2, column 1, lines 60-68, column 2, lines 26-39, column 3, lines 3-6, 17-35, column 5, lines 30-50, column 6, and lines 15-24. WIER teaches the use of a collimating filter between the ultraviolet light source, i.e. an example of actinic light source, and the panel to receive the light such that the light falls onto the plate in substantially parallel rays of light in order to form a sharp clear image. WIER does not disclose other than flat surfaces but does teach the known desire to have the light hit the surface as close to perpendicular as possible for sharp clear images. In WIER, see particularly SUMMARY OF THE INVENTION and column 4, lines 17-28. TRUMP teaches the use of a plurality of tubular ports, passages or openings through a layer between light and surface to be imaged in order to collimate the light forming parallel light to the film path which is cylindrical in the TRUMP device. TRUMP is not imaging a printing plate but instead silver images but for the same reason of obtaining sharp images on an arcurate surface. SPEICHER and KAROL teach the use of collimated or non-divergent light to image the surface of a photoresist cylinder at an angle perpendicular to the arcurate surface either within the cylinder or outside the cylinder by using a mirror to bounce the light into the proper angle. See in both SPEICHER and KAROL, Figures 2 and 3, and in SPEICHER, see particularly column 2, lines 20-48. In KAROL, the imaging can occur from the outside of the cylinder by using an outside conical mirror whose axis also lies on the axis of the cylinder as found in lines 35-49 of col. 2.

Thus, with respect to instant claims 16-17 and 21-25, the collimation of light as well as the use of such in a manner as to strike the surface to be imaged of an arcurate surface in order to form a finer image is known in the art as discussed above; therefore, the use of such exposure for the same art recognized purpose of sharpened images when exposing the cylinders made obvious from the plates of FAN (1) as modified with the teachings of CUSHNER ET AL in order to avoid all the unnecessary steps involved in forming a negative for imaging the photopolymerizable layer and (2) to obtain a more perfect printed image without a bump would have been obvious to one of ordinary skill in the art as combining prior art elements according to known methods to yield predictable results.

VI. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over FAN in view of CUSHNER ET AL. further in view of PLAMBECK, JR. and FERREE ET AL and in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER as applied to claim 16 above, and further in view of KANGA. The methods made obvious by FAN and CUSHNER ET AL further in view of PLAMBECK, JR. and FERREE ET AL and in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER set forth above do not disclose the use of a substrate with 85-95 percent blocked light for back exposure for forming a floor. However, KANGA teaches such a support with materials like that of FAN in order to obtain a more even floor and thus better printed images. In KANGA ET AL, see particularly the Abstract, col. 2 and 3, and col. 6. lines 15-50. Thus, with respect to appellants' claims 17-20, the use of such supports as those of KANGA with the methods of FAN using collimated light with an egg crate baffle as needed as taught by PLAMBECK, JR. for fine imaging or the methods of NELLISSEN, WIER, TRUMP, KAROL OR SPEICHER would have been *prima facie* obvious to obtain better printed

images because of a more even floor being formed by backflash exposure. With respect to appellants' claims 17-20, the use of the supports of KANGA as the support of FAN while using collimated light with an egg crate baffle as needed for fine line imaging would have been obvious to workers of ordinary skill in the printing plate formation industry to obtain finer printed images by the formation of a more even floor being formed upon backflash exposure due to the blocked light substrate of KANGA being present.

**(10) Response to Argument**

a. Rejection of claims 6-10 and 13-14 are rejected under 35 U.S.C. 103(a) over KANGA in view of FAN and CUSHNER ET AL further in view of GUSH ET AL, WERBER, GELBART and OHBA ET AL further in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER.

Appellants disagree that the combination of references cited by the Examiner describes or suggests all of the features of the claimed invention with the feature not established by the examiner being the use of actinic radiation comprised of one or more collimated sources of actinic radiation wherein the light rays emanating from the one or more sources “strike the photosensitive printing element at an angle that is substantially perpendicular to the surface of the photosensitive printing element at the point of impact.” Appellants do not disagree with the Examiner’s combination of references with respect to the method up to the point of using collimated light. Thus, the combining of KANGA in view of FAN and CUSHNER ET AL to make obvious the instant method of making hollow cylindrical printing sleeve up through step c) is not argued. To this point, there is tacit agreement as to what is *prima facie* obvious. There is no argument about the obviousness of the final step, i.e. e), of development.

The examiner believes she has put forth sufficient evidence with GUSH ET AL, WERBER, GELBART and OHBA ET AL further in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER to make prima facie obvious the step of (d) exposing the cylindrical sleeve to at least one source of actinic radiation to polymerize the portions of the layer of photopolymerizable materials revealed during laser ablation of the masking layer, wherein the at least one source of actinic radiation comprises one or more collimated sources of actinic radiation wherein the light rays emanating from the at least one source of actinic radiation strike the photosensitive printing element at an angle that is substantially perpendicular to the surface of the photosensitive printing element at the point of impact.

Appellants argue that the test is wither the references as a whole would have suggested Appellants invention to one of ordinary skill in the art at the time the invention was made and that this articulation be clearly made as why such would have been obvious. Because the examiner combined flat photosensitive printing element art in WIER, GUSH and WERBER, appellants argue WIER, GUSH and WERBER cannot recognized any of the benefits of the present invention in improving image quality when imaging an arcurate printing surface. Thus, because of this WIER, GUSH and WERBER combined with KANGA, FAN and CUSHNER ET AL cannot suggest all of the features of the instant invention. The examiner notes that WIER, GUSH and WERBER combined with KANGA, FAN and CUSHNER ET AL do not stand alone in this rejection. WIER, GUSH and WERBER are cited to show the known use of collimated light sources in the imaging of printed plates in order to form finer images. Appellants for the first time argue what is shown in WIER. To this point Appellants argued WIER was not of sufficiently old enough date to be prior art under 35 U.S.C. 103(a). The examiner believes that

WIER, GUSH and WERBER teach what was set forth, that collimating light that is to be used to image a layer underneath a mask layer in the relief printing plate formation art to form a finer image is well known in the art. The desire to have the light strike the plate even if flat instead of rounded as in a cylinder is the same as wanting to strike the plate as perpendicularly as possible at the point of image. The desire to have such a strike perpendicular at all points of the plate whether flat or cylindrical is held *prima facie* obvious for all the same reasons, i.e. to form a finer image. At each point of strike, there is a point where the plate or cylinder needs to be struck with respect to the mask at a perpendicular angle as closely as possible to achieve the fine image.

WIER, GUSH and WERBER are cited to show that this solution of using collimated light to achieve such a fine image is understood and recognized in the prior art. Appellants argue that WIER does not show a polarizer, i.e. collimator, between light source and mask but instead only shows a polarizer between mask and photoresist. The examiner disagrees with Appellants limited reading of WIER. WIER in FIG. 4 teaches the light source then the polarizing filter, atop the negative used as a mask atop the plate to be imaged. This is described in col. 2 lines 32-34 and again in lines 41 to 49 of column 3 wherein WIER makes clear that the random ultraviolet rays emitted from the light source are first passed through the polarizer resulting parallel ultraviolet rays, i.e. collimated light, striking the plate perpendicularly. In column 4, lines 17, WIER discloses the filter is used to collimate the UV light source during the photopolymer plate exposure to gain the advantages of collimated light with the disadvantages of a conventional polarized UV light sources. Appellants point out that WERBER and GUSH are directed to conventional plate making processes using liquid photosensitive compositions and that there is no teaching or suggestion that such liquid photosensitive compositions would be usable in

making seamless printing sleeves as in the present invention. The examiner notes that WERBER and GUSH were cited to show the use of collimated light when imaging with a mask. GUSH at lines 11-27 of column 5 disclose the use of a point or collimated light source to image with a transparency, i.e. mask, either in contact or spaced from the photocurable layer. GUSH references the desire of using collimated light or point light source especially with air gaps between negatives, i.e. masks, and photocurable polymer, but GUSH still teaches the desire to sued collimated light to form fine lines.

Thus, if a finer image is desired, than can be achieved with point source light, then collimated light is a known solution to such a desire as shown by GUSH, WERBER and especially WIER.

The examiner agrees that GUSH, WERBER and WIER are not drawn to curved, arcurate, cylindrical plates. However, the examiner turns to OHBA ET AL to show that the use of collimated light when exposing curved, arcurate, cylindrical plates instead of flat plates is known in the art. The examiner agrees that OHBA ET AL addresses the imaging of cylindrical plates without the use of an intervening mask but OHBA ET AL does address the desire to strike the plate to be imaged with collimated light at a nearly parallel at point of impact of light as possible to avoid shift of focus of the recorded images. OHBA ET AL addresses shifting of image due to heating of their systems and causing problems with the magnified image striking the plate at the focus point, but still show the known use of adapting exposure devices for cylinders to be used with collimated light.

Appellants argue that NELLISSEN is drawn to imaging spherical elements and not cylindrical elements ant that the angle in FIGURE 2 is not being collimated such that the light

strikes the surface of the element “substantially perpendicular to the surface of the element at the point of impact. Thus, NELLISSEN does not cure any of the deficiencies of GUSH and WERBER and GELBART combined with KANGA, FAN and CUSHNER ET AL. The examiner cites NELLISSEN to show the known methods of using a mirror to strike a curved surface and the use of collimated light to aid in this method of imaging. NELLISSEN also addresses the collimation angle of light used for imaging when less than 1 degree giving no problems of resolution problems. NELLISSEN is drawn to manipulating collimated light in various ways to obtain the desired fine pattern having many parallel conductor tracks via the use of collimated light. Appellants are correct in pointing out that NELLISSEN is not drawn to perpendicularity as desired in the instant invention but NELLISSEN is drawn to showing how to image a non planer element with collimated light to end up with a fine image which is why it is cited by the Examiner in her rejection. Other methods of manipulating the light or collimating the light for cylindrical elements to be imaged are taught by TRUMP. Appellants argue that because TRUMP is (1) drawn to imaging the internal surface of a cylindrical element and not the external surface as in the present invention and is (2) not shown in Figure 1 as striking the surface at an angle that substantially perpendicular that is not combinable with KANGA, FAN, CUSHNER, WERBER, GUSH, GELART and NELLISSEN because TRUMP does not address the issue of image fidelity. The examiner holds that TRUMP does show one manner of collimating the light to hit a curved surface. The physical manipulation of such a collimator to the outside instead of inside a cylinder is held to be a choice of which side of the cylinder is to be imaged. The collimator of TRUMP is used to make a finer image and is an art recognized manner of collimating light to make a finer image. Thus, it is properly used. It is KAROL and

SPEICHER that show the skill of the worker in the art for imaging either inside or outside a cylinder when making a printing plate via a mask exposure. Appellants allege that because KAROL and SPEICHER are coating internal surfaces of cylinders and not just the outside surfaces, i.e. because KAROL and SPEICHER make a different kind plate than that of the instant invention, then their general teachings with respect to how to image a plate are not relevant to other plates. Appellants also argue that because the mask of KAROL and SPEICHER is “loosely mounted” that the teachings are not relevant to the instant application. The examiner has already addressed the knowledge in the prior art with respect to the use of collimated light to form finer images in the printing plate art. KAROL and SPEICHER are not limited to imaging only from the inside of a cylinder as alleged by appellants. Karol in column 2, lines 35-40, disclose the conical mirror used to reflect the collimated light can be outside the cylinder reflecting the collimated light radially in toward the outside surface of the cylinder with mask on the outside of the cylinder. SPEICHER, too, discloses this outside exposure in column 2, lines 35-40. Both KAROL and SPEICHER address the preservation of nondivergent light, i.e. parallel light, which moves along the radius of the cylinder to achieve a true pattern with clear and distinct edges. The problem of fine focus becomes more problematic as the distance from mask and layer to be imaged grows thus if the mask is loose then the need for collimating light is more evident. Thus, KAROL and SPEICHER still show a known solution of collimating light to form a finer image with respect to a cylindrical surface. KAROL and SPEICHER reference imaging photoresists but the problem is essentially the same except KAROL and SPEICHER want to image both inner and outer surface. This is the same problem faced by appellants and shown to be known in the art of relief printing plates in general by WERBER and GUSH ET AL. The rejection stands.

b. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over KANGA in view of FAN and CUSHNER ET AL further in view of GUSH ET AL, WERBER, GELBART and OHBA ET AL further in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER as applied to claim 6 above, and further in view of KITAMURA ET AL in view of PLAMBECK, JR. and FERREE ET AL.

Appellants argue that because of the above reasons with respect to claim 6, claim 12 is allowable over the prior art. This has been addressed above. Appellants argue that because KITAMURA ET AL does not address collimating light sources and because KITAMURA ET AL is directed to a process of forming printing plates from liquid photosensitive resin, curing an overall surface is what KITAMURA ET AL addressing. Further KITAMURA ET AL cannot be combined with the teachings of GELBART or OHBA in any fashion as GELBART and OHBA are drawn to scanning head imaging instead of overall imaging. Further, none of the prior art of record is drawn to collimating multiple sources of light simultaneously to expose an entire surface of a photosensitive printing element with light rays that strike the printing element at an angle substantially perpendicular to the surface of the printing element at the point of impact. KITAMURA ET AL teaches the formation of a cylinder to be imaged, the placement of a mask on the outside of the cylinder to be imaged an exposure from multiple light sources from the outside of the cylinder and the mask to image the cylinder. Thus, KITAMURA ET AL teaches the use of multiple lights, all of the 10 B lights, formed as in Figure 11, around the outside of a glass cylinder with a mask layer just inside the cylinder and a printing plate cylinder layer as A to be imaged inside the mask layer F, i.e. the negative. While the nature of the plate is not the same as in the instant invention the manner of multiple light sources for imaging all over the

surface of a cylinder at once is shown by KITAMURA ET AL. The problem with one source of light for imaging with respect to wanting a fine image is the same for each source of light used. Thus, one light collimated via the methods known in the art or multiple lights collimated via the methods known in the art would solve the same problem of fine image desirability at the point of impact of the light used for imaging. KITAMURA ET AL shows what the examiner stated which is the imaging of the outside of a printing cylinder with a mask via multiple sources of light. The nature in which the printing cylinder is cured before the step of imaging is not why KITAMURA ET AL is cited. It is cited to show that workers of ordinary skill in the art understand how to image a printing plate surface from the outside of a cylinder via a mask layer all at once if they so desire to do so. The examiner agrees with applicant's arguments that a scanning method of imaging cannot be combined directly with the overall imaging of KITAMURA ET AL via a bank of lights. However, issues with respect to why collimated light is needed to form fine images at any one point of light exposure on any one point of a surface to be imaged are generally the same and up to the point of showing the need to control the light by collimation to achieve finer images the arts are addressing the same problem of loss of resolution when light scatters. Appellants again argue that TRUMP is drawn to imaging from the inside of a cylinder instead of the outside. The examiner cites TRUMP to show the nature of the collimator known in the art. For this reason it is still related art. The examiner agrees that NELLISEN is not clearly adaptable to the bank of lights used by KITAMURA ET AL. The placement of the filters of However, the teachings of NELLISEN with respect to manipulation of collimated light to form finer images is generally applicable to the problem.

The rejection stands for the reasons of record.

c. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over KANGA in view of FAN and CUSHNER ET AL further in view of GUSH ET AL, WERBER, GELBART and OHBA ET AL further in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER further in view of KITAMURA ET AL as applied to claim 12 above, and further in view of in view of PLAMBECK, JR. and FERREE ET AL.

Appellants argue that PLAMBECK, JR is not directed to arcurate surfaces, i.e. curved surfaces and that collimation by elimination of "low angle rays" as in PLAMBECK, JR is not collimation such that light rays strike substantially perpendicular to the surface. The examiner disagrees with appellants' narrow reading of PLAMBECK, JR. PLAMBECK, JR which is drawn to a flat relief printing plate at time of exposure through a mask teaching the control of angle of the printing surface formed by the geometry of the light source in column 4, lines 15-35. The angle of taper with respect to the plate surface is disclosed to be controlled of from 50 degrees to 90 degrees with the horizontal base. 90 degrees would be perpendicular to the horizontal base. PLAMBECK, JR in column 3, lines 26-41, teach the use of either point sources of light in the form of parallel rays or divergent beams or broad light sources to reduce exposure time. Starting in line 52 of column 4, PLAMBECK, JR teaches for halftone plates of certain thicknesses the desire to have sloping shoulders on the image formed is not essential since the height of the smallest element described is very close to its diameter. Then in the next paragraph PLAMBECK, JR disclose that when light sources consisting of lamps in individual reflectors the angle of the light required the use of a light controlling baffle, e.g. an egg-crate baffle, can eliminate the unwanted rays below the minimum desired angle to achieve extremely fine lines. The examiner believes this egg crate baffle to be a collimator in that it removes the non parallel

rays when 90 degrees is wanted to strike the plates of PLAMBECK, JR to obtain a very fine image. The examiner agrees with appellants that PLAMBECK, JR is drawn to a flat plate at time of exposure. However, the problems of angle of the formed image are only made worse if imaging a non flat surface as would be easily understood by workers of ordinary skill in the art.

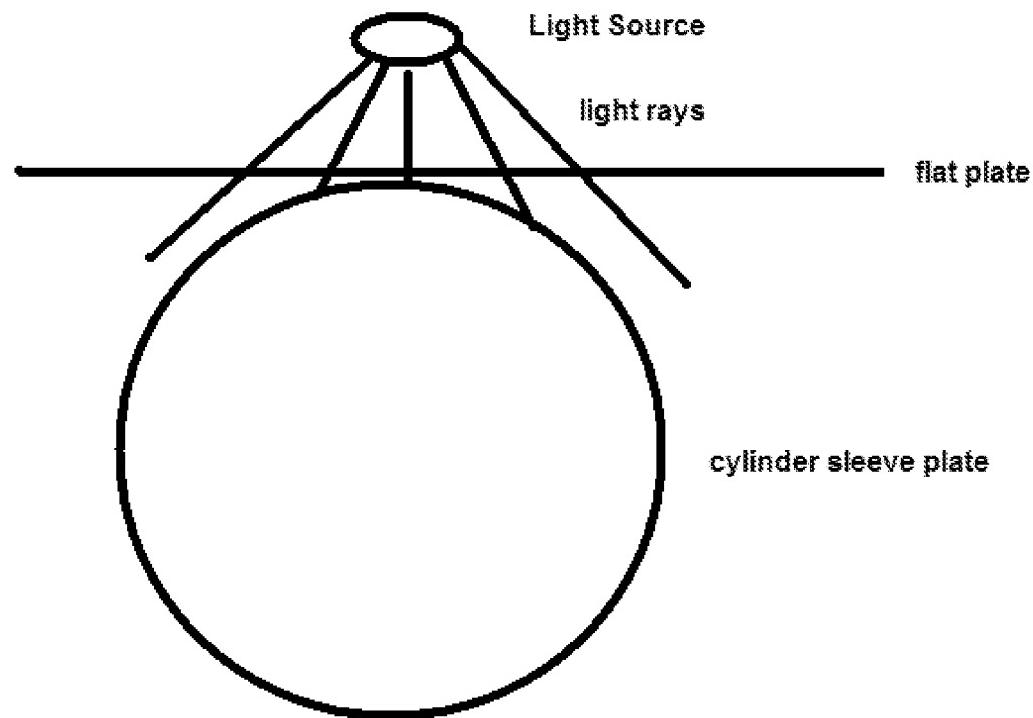
d. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over KANGA in view of FAN and CUSHNER ET AL further in view of GUSH ET AL, WERBER, GELBART and OHBA ET AL further in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER as applied to claim 14 above, and further in view of PLAMBECK, JR. and FERREE ET AL.

Appellants present no new arguments with respect to claim 15 other than that made for claim 14 above.

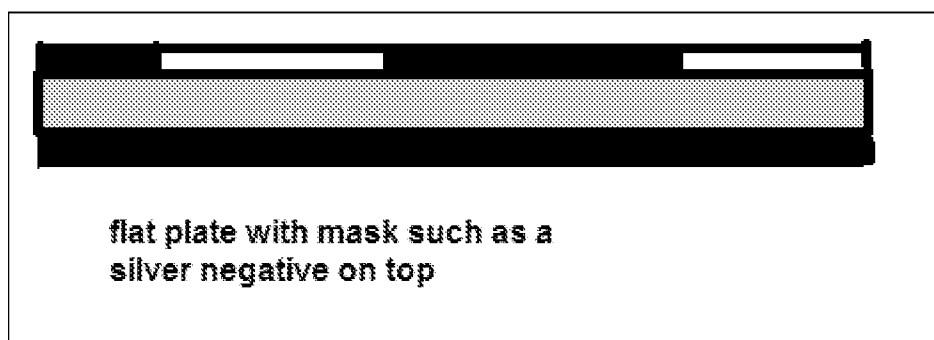
e. Claims 16-17 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over FAN in view of CUSHNER ET AL further in view of PLAMBECK, JR. and FERREE ET AL and in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER.

Appellants argue that the feature of placing collimated lights between each UV lamp and the photopolymerizable printing sleeve is neither described nor suggested in any of the prior cited by the Examiner. The examiner agrees that no one piece of prior art shows the combination of a light source, collimator and photopolymerizable printing sleeve related in the manner found in appellants' Figures 2 and 4. However, this does not make such a combination of light source, collimator and photopolymerizable printing sleeve to form a finer image unobvious over the prior art of record.

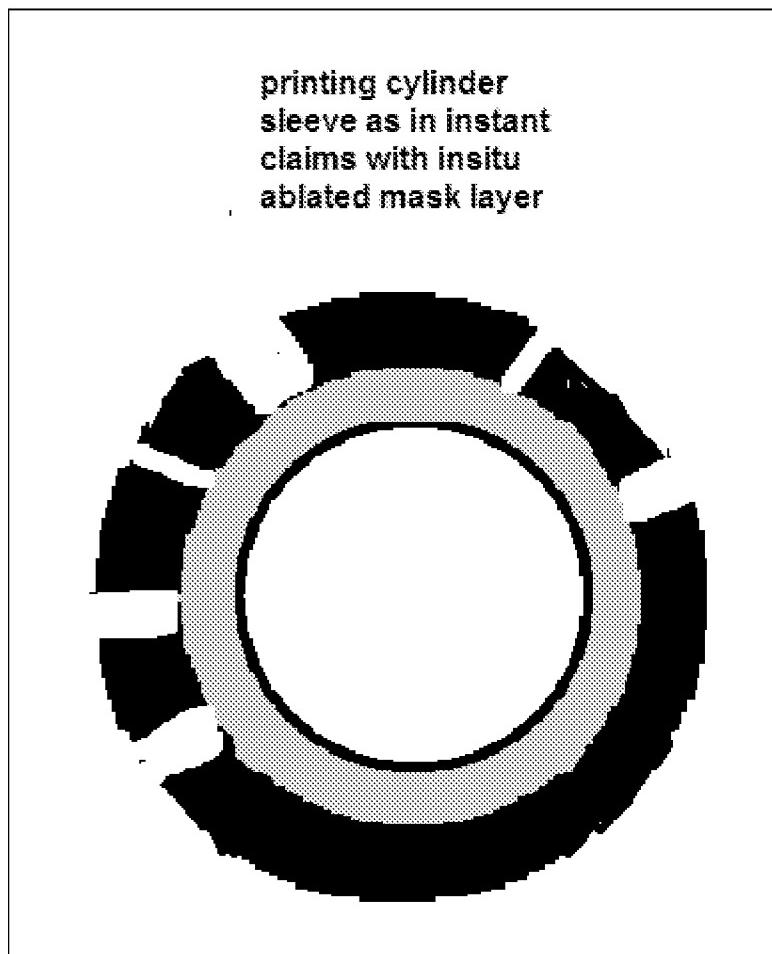
PLAMBECK, JR which is drawn to a flat relief printing plate at time of exposure through a mask as set forth teaches the control of angle of the printing surface formed by the geometry of the light source in column 4, lines 15-35. The angle of taper with respect to the plate surface is disclosed to be controlled of from 50 degrees to 90 degrees with the horizontal base. 90 degrees would be perpendicular to the horizontal base. PLAMBECK, JR in column 3, lines 26-41, teach the use of either point sources of light in the form of parallel rays or divergent beams or broad light sources to reduce exposure time. Starting in line 52 of column 4, PLAMBECK, JR teaches for halftone plates of certain thicknesses the desire to have sloping shoulders on the image formed is not essential since the height of the smallest element described is very close to its diameter. Then in the next paragraph PLAMBECK, JR disclose that when light sources consisting of lamps in individual reflectors the angle of the light required the use of a light controlling baffle, e.g. an egg-crate baffle, can eliminate the unwanted rays below the minimum desired angle to achieve extremely fine lines. The examiner believes this egg crate baffle to be a collimator in that it removes the non parallel rays when 90 degrees is wanted to strike the plates of PLAMBECK, JR to obtain a very fine image. The examiner agrees with appellants that PLAMBECK, JR is drawn to a flat plate at time of exposure. However, the problems of angle of the formed image are only made worse if imaging a non flat surface as would be easily understood by workers of ordinary skill in the art. The examiner sets forth below the difference between flat plate and cylinder below when striking with light rays of an un-collimated source.



A simple understanding of geometry would lead a worker in this art to understand that the angles formed on a cylindrical surface would be even broader than that formed on a flat plate and that even at 90 degrees when striking the point of image a tapered image would be formed on a cylindrical substrate. The plates of PLAMBECK JR are at point of exposure essentially as follows:

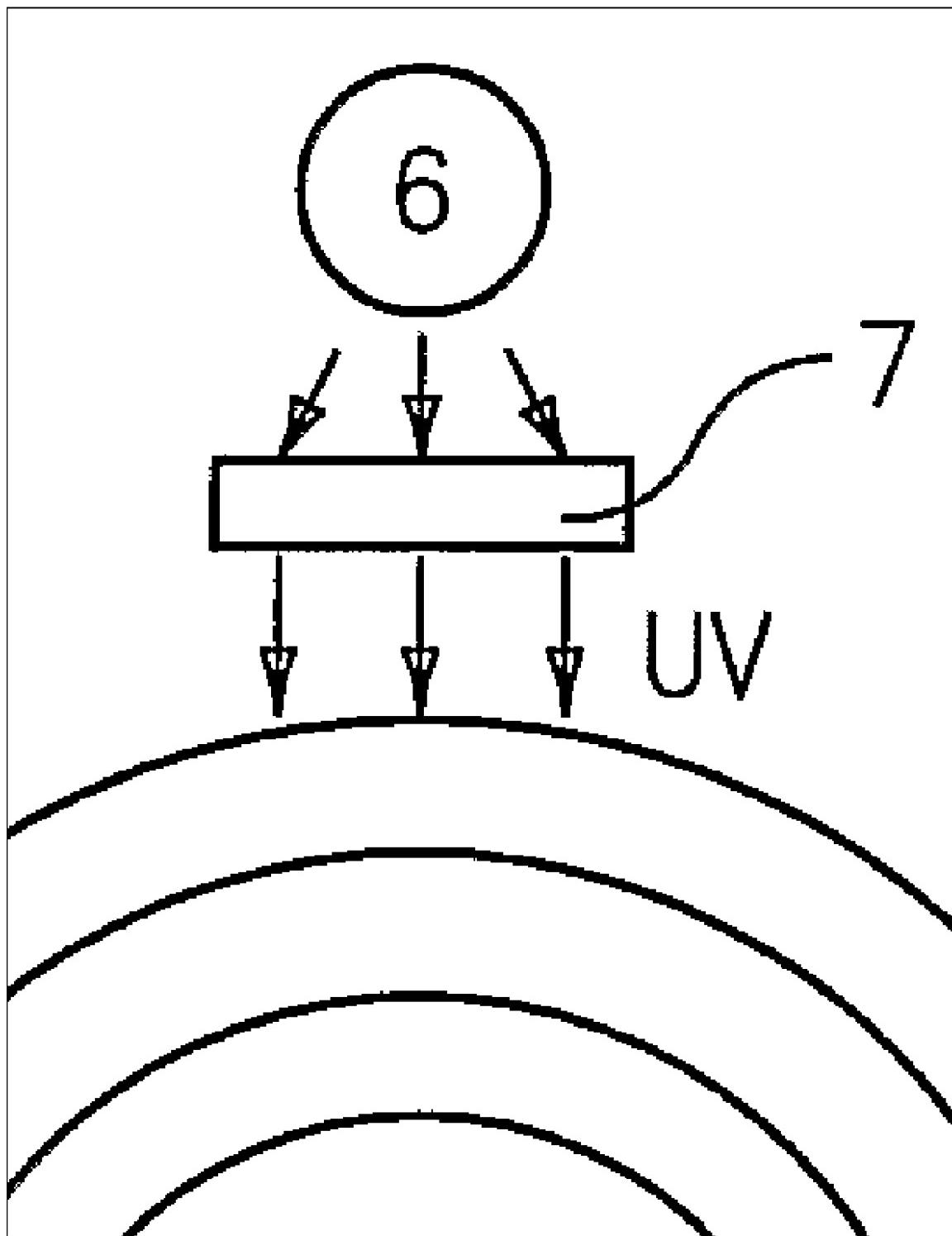


The instant cylinders are as follows at point of exposure essentially as follows:



These are rough drawings

made by the examiner. The grey portions are the layers to be cured and to be struck with substantially parallel rays from one or more collimated light sources. FERREE et al is only used by this examiner to show the nature of an egg crate baffle used with a light source. Such a baffle meets the description of the collimator of appellants' claims 13, 15, 23 and 25. How appellants achieve collimation of light with respect to their cylinders is set forth on page 11 and in Figures 2 and 4. A portion Figure 2 is reproduced below:



Appellants use the same collimation as if the plate were flat with respect to this drawing. Only the center arrow would strike perpendicularly to the surface. Thus, the effect is essentially the

same as set forth by PLAMBECK JR only the surface to be exposed is curved thus much more prone to loss of fine image if the light is not collimated than the flat plates of PLAMBECK JR.

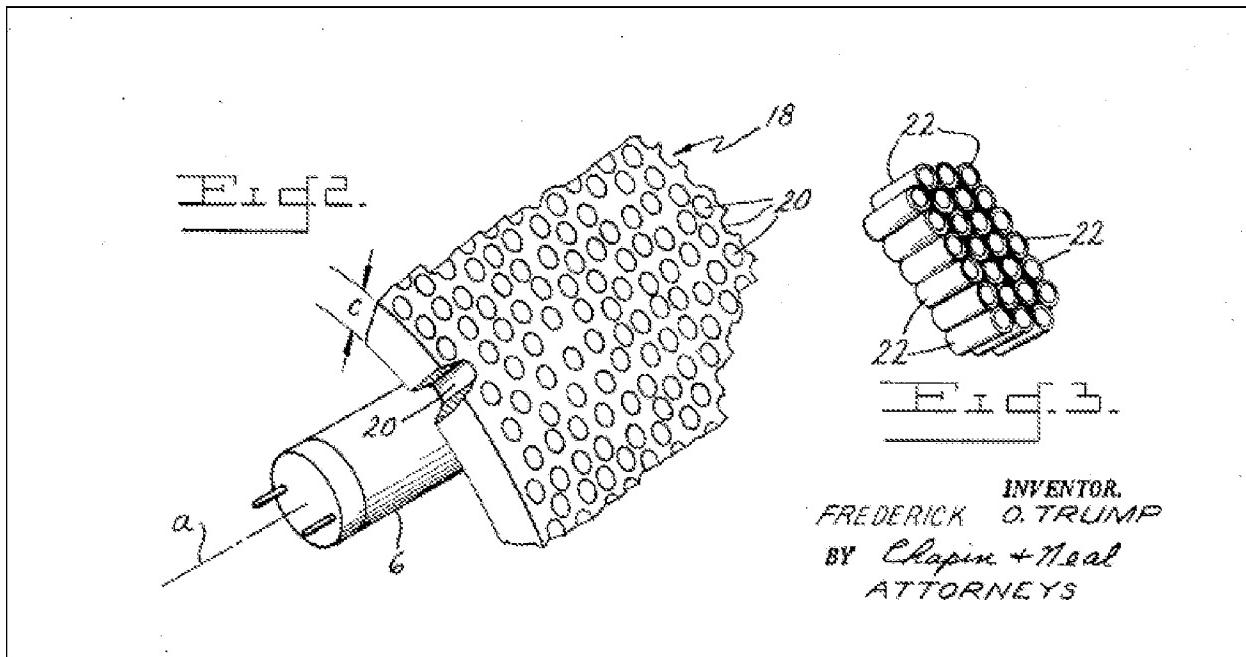
Appellants argue that PLAMBECK JR does not address light collimation such that the light rays strike the photosensitive printing sleeve at an angle that is substantially perpendicular to the surface of the photosensitive printing element at the point of impact. Appellants err in that PLAMBECK JR does address such an angle with respect to the flat plates disclosed as set forth when the angle of taper with respect to the plate surface is disclosed to be controlled of from 50 degrees to 90 degrees with the horizontal base. The examiner has already addressed why workers of ordinary skill in the art would expect the same gains in fine image if the surface were curved instead of flat. Appellants argue with respect to FERREE the same deficiencies of not addressing an arcurate, i.e. curved surface.

Appellants reference arguments with respect to WIER, TRUMP, KAROL an SPEICHER as same as given in previous arguments. Further, appellants argue since NELLISSEN is drawn to spherical elements that the teachings thereof are not relevant to cylindrical elements and that NELLISSEN does not show substantially perpendicular rays hitting the objects to be exposed. The examiner believes that imaging a curved surface which is spherical is even more difficult than that of a cylinder but essentially is the same with respect to manipulating the collimated light at an angle desired to obtain an image of the desired fineness. It is the manipulation of collimated light that is addressed by citing NELLISSEN and as to what is "substantially parallel", appellants do not so define substantially with respect to parallel. Thus, the examiner believes she has applied NELLISSEN properly.

Appellants argue that TRUMP because it is drawn to imaging from within a cylinder is not applicable for the reasons given by the examiner. Appellants believe that TRUMP is not related to the problems solved by appellants because TRUMP is concerned with high speed high resolution equipment for the reproduction of film strips employed in aerial reconnaissance. TRUMP is concerned with the problem of making a finer image with the use of collimated light when imaging a layer on a curved support. The examiner believes that this art is close enough to be related to the same problem faced by appellants and the prior art with respect to PLAMBECK, JR and curing the image into photocurable relief printing elements. PLAMBECK, JR references the use of collimation to make finer images. TRUMP makes use of collimators to do such in the related art of exposing film strip stock. TRUMP teaches another form of collimation of light for exposure of a surface to be imaged. The examiner agrees that the actual imaging technique of TRUMP makes use of a collimator positioned inside the cylinder, but the examiner notes that the form of the collimator is still a form well known in the art and the designing of such for a collimator for a light striking the outside of a cylinder would be an adaptation well within the capability of one of ordinary skill in the art once the desire to collimate light to expose the outside of a cylinder was desired. TRUMP was cited only to show another well known form of collimator in the exposure art. Figures 2 and 3 from TRUMP are

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reproduced below to show the general nature of the light collimator used.



What is made obvious by TRUMP is the nature of the collimator to be placed between the light source and the curved surface to be exposed. The examiner believes that TRUMP is properly used and maintains that it is sufficiently close to the problem faced by PLAMBECK JR as to be properly used when considering cylinders instead of flat plates for light exposure.

SPEICHER and KAROL reference collimating light to a plane perpendicular to the surface to be imaged via bending the light with a conical mirror either inside a cylinder or outside (which is referenced but not shown). Appellants would allege a narrower reading of both SPEICHER and KAROL but the outside conical mirror is clearly taught in both SPEICHER and KAROL. Appellants make reference to where the mask is but this does not detract from the general teachings of SPEICHER and KAROL with regard to imaging cylindrical surfaces. SPEICHER and KAROL sought accuracy of patterned image just as appellants seek a finer

image by collimation of light. Thus, the teachings are related to the same problem solved by appellants and understood by PLAMBECK JR with respect to relief plate imaging with a mask.

The rejection stands for reasons given.

f. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over FAN in view of CUSHNER ET AL. further in view of PLAMBECK, JR. and FERREE ET AL and in view of NELLISSEN, WIER, TRUMP, KAROL and SPEICHER as applied to claim 16 above, and further in view of KANGA.

Appellants present no new arguments with respect to this combination. They stand on the arguments given for the rejection of claim 16 as made above.

The rejection stands.

### Conclusion

The examiner holds that appellant's method of making a hollow cylindrical printing sleeve is made obvious by the prior art of record.

Appellants do not argue the combination of KANGA, FAN and CUSHNER ET AL unobviousness over the prior art with respect to making their plate through and including step b) the removal of portions of the masking layer by exposing the masking layer to laser radiation at a selected wavelength and power and step c) exposing the layer of photopolymerizable material to actinic radiation through the hollow cylindrical support layer to create a floor layer of polymerized material. Appellants do not argue that the part of step d) exposing the surface of the cylindrical sleeve to at least one source of actinic radiation to polymerize the portions of the layer of photopolymerizable material revealed during laser ablation of the masking layer is

unobvious by the prior art. Appellants do not argue that step e) developing the photosensitive printing element to remove the masking layer and the unpolymerized portions of the layer of photopolymerizable material to create a relief image in the surface of the photosensitive printing element is unobvious over the prior art of record.

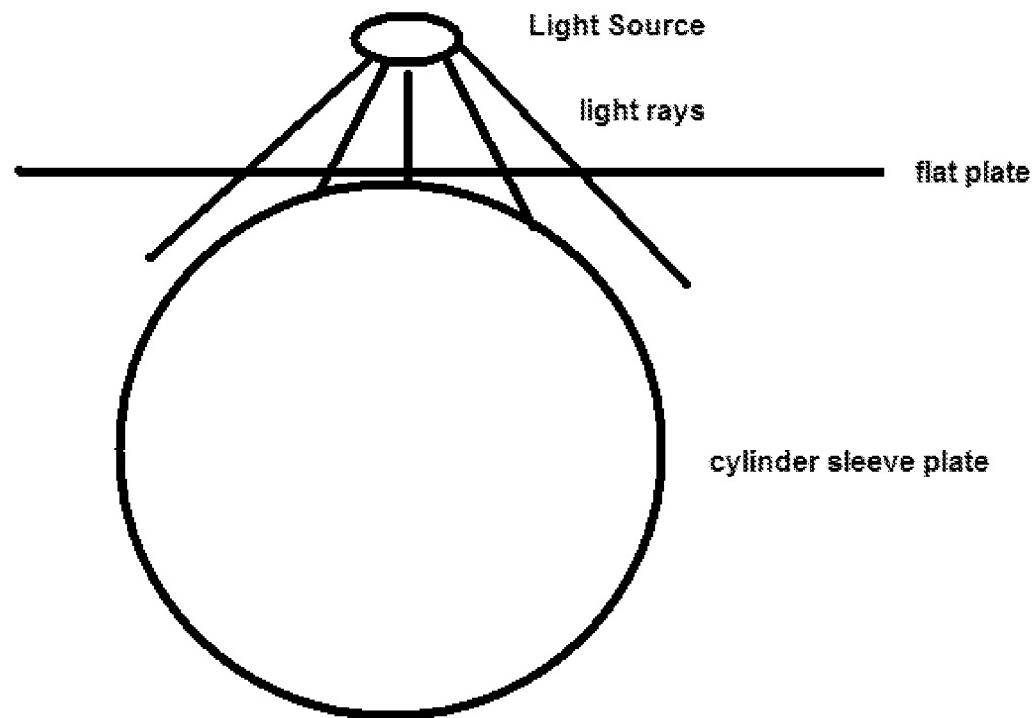
All arguments set forth by appellants are directed to their belief that the examiner has failed to show with respect to step d) using collimated sources of actinic radiation with the one or more sources of actinic radiation to expose the surface of the cylindrical sleeve to polymerize the portions of the layer of photopolymerizable material revealed during laser ablation of the masking layer and that the light rays emanating from the collimated light source are positioned in such a manner as to strike the photosensitive printing element at an angle that is substantially perpendicular to the surface of the photosensitive printing element at the point of impact. This use of collimated light and situation of light rays via collimation to form a perpendicular strike at the point of image on a cylinder surface to achieve a finer image is alleged by appellants to be *prima facie* unobvious over the prior art of record and alleged by the examiner to be *prima facie* obvious.

The obviousness or lack thereof with respect to step d) is where the appellants and examiner disagree with respect to what is made obvious by the prior art of record. The examiner believes that she has shown such manipulation via collimation of light would have been *prima facie* obvious in view of the prior art taken as a whole and appellants believe that such is not *prima facie* obvious when considering the prior art as a whole.

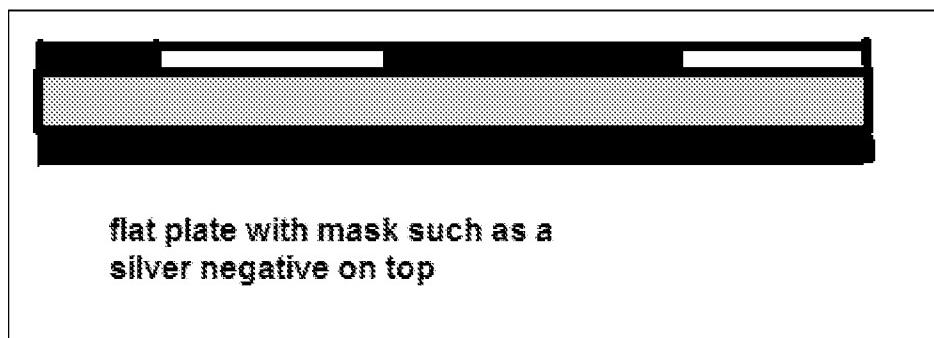
What is well known in the art, is when collimated light is used to image a printing plate surface a finer image can be obtained if needed. Appellants argue about the meaning of

collimation, but the examiner believes that the prior art makes use of the term in the same fashion as that set forth by appellants.

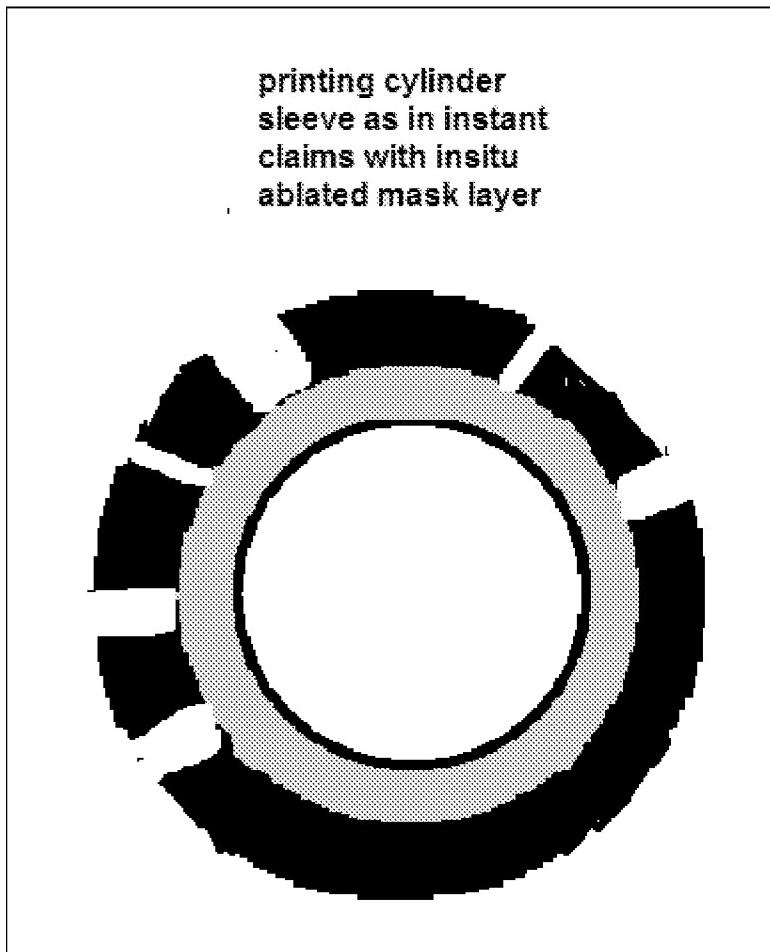
PLAMBECK, JR which is drawn to a flat relief printing plate at time of exposure through a mask as set forth by appellants teaches the control of angle of the printing surface formed by the geometry of the light source in column 4, lines 15-35. The angle of taper with respect to the plate surface is disclosed to be controlled of from 50 degrees to 90 degrees with the horizontal base. 90 degrees would be perpendicular to the horizontal base. PLAMBECK, JR in column 3, lines 26-41, teach the use of either point sources of light in the form of parallel rays or divergent beams or broad light sources to reduce exposure time. Starting in line 52 of column 4, PLAMBECK, JR teaches for halftone plates of certain thicknesses the desire to have sloping shoulders on the image formed is not essential since the height of the smallest element desired is very close to its diameter. Then in the next paragraph PLAMBECK, JR disclose that when light sources consisting of lamps in individual reflectors the angle of the light required the use of a light controlling baffle, e.g. an egg-crate baffle, can eliminate the unwanted rays below the minimum desired angle to achieve extremely fine lines. The examiner believes this egg crate baffle to be a collimator in that it removes the non parallel rays when 90 degrees is wanted to strike the plates of PLAMBECK, JR to obtain a very fine image. The examiner agrees with appellants that PLAMBECK, JR is drawn to a flat plate at time of exposure. However, the problems of angle of the formed image are only made worse if imaging a non flat surface as would be easily understood by workers of ordinary skill in the art. The examiner sets forth below the difference between flat plate and cylinder below when striking with light rays of an un-collimated source.



A simple understanding of geometry would lead a worker in this art to understand that the angles formed on a cylindrical surface would be even broader than that formed on a flat plate and that even at 90 degrees when striking the point of image a tapered image would be formed on a cylindrical substrate. The plates of PLAMBECK JR are at point of exposure essentially as follows:

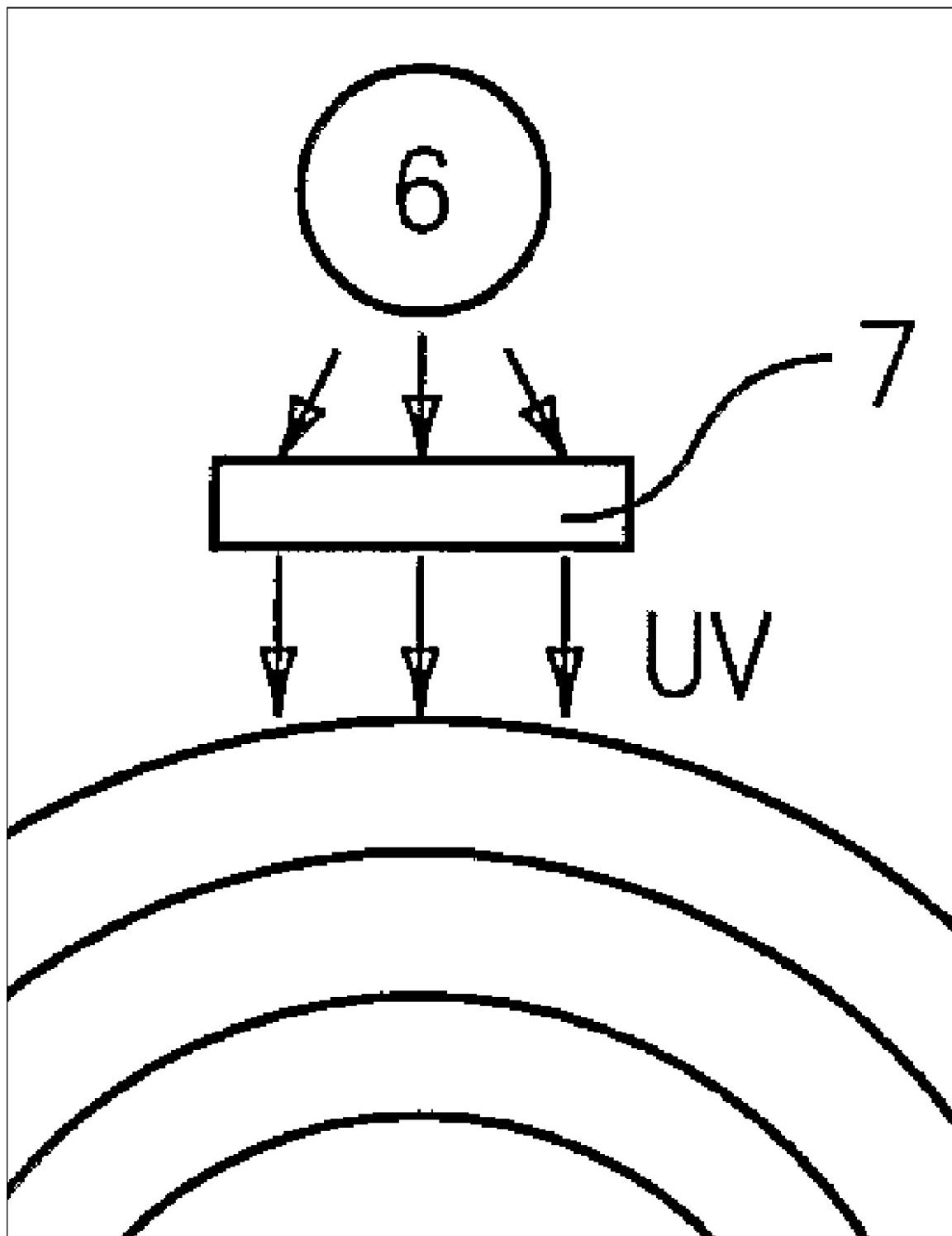


The instant cylinders are as follows at point of exposure essentially as follows:



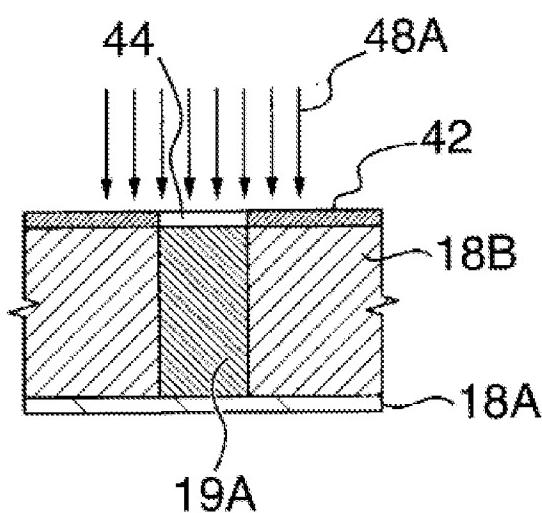
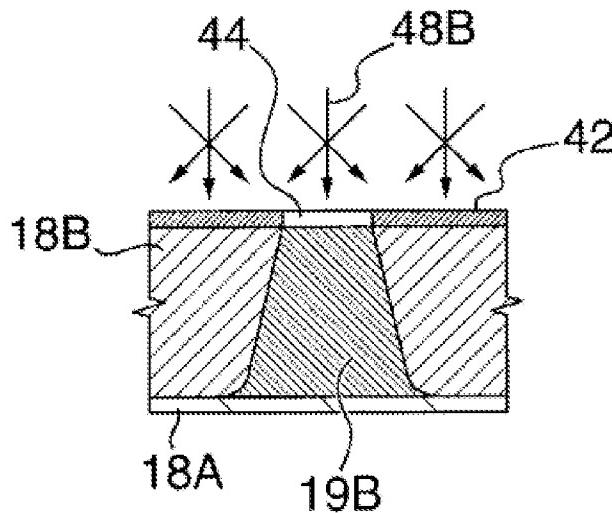
These are rough drawings

made by the examiner. The grey portions are the layers to be cured and to be struck with substantially parallel rays from one or more collimated light sources. FERREE et al is only used by this examiner to show the nature of an egg crate baffle used with a light source. Such a baffle meets the description of the collimator of appellants' claims 13, 15, 23 and 25. How appellants achieve collimation of light with respect to their cylinders is set forth on page 11 and in Figures 2 and 4. A portion Figure 2 is reproduced below:



Appellants use the same collimation as if the plate were flat with respect to this drawing. Only the center arrow would strike perpendicularly to the surface. Thus, the effect is essentially the

same as set forth by PLAMBECK JR only the surface to be exposed is curved. The examiner uses other references in her rejection to show that manipulation of light because a surface is curved to achieve the image desired is understood by workers of ordinary skill in the art whether imaging from inside a curved surface or outside a curved surface. GELBART shows in FIG. 3 a and FIG. 3b the differences between using collimated light and non collimated light with respect to the relief image formed. These figures are reproduced below for ease of reference.

**FIG. 3a****FIG. 3b**

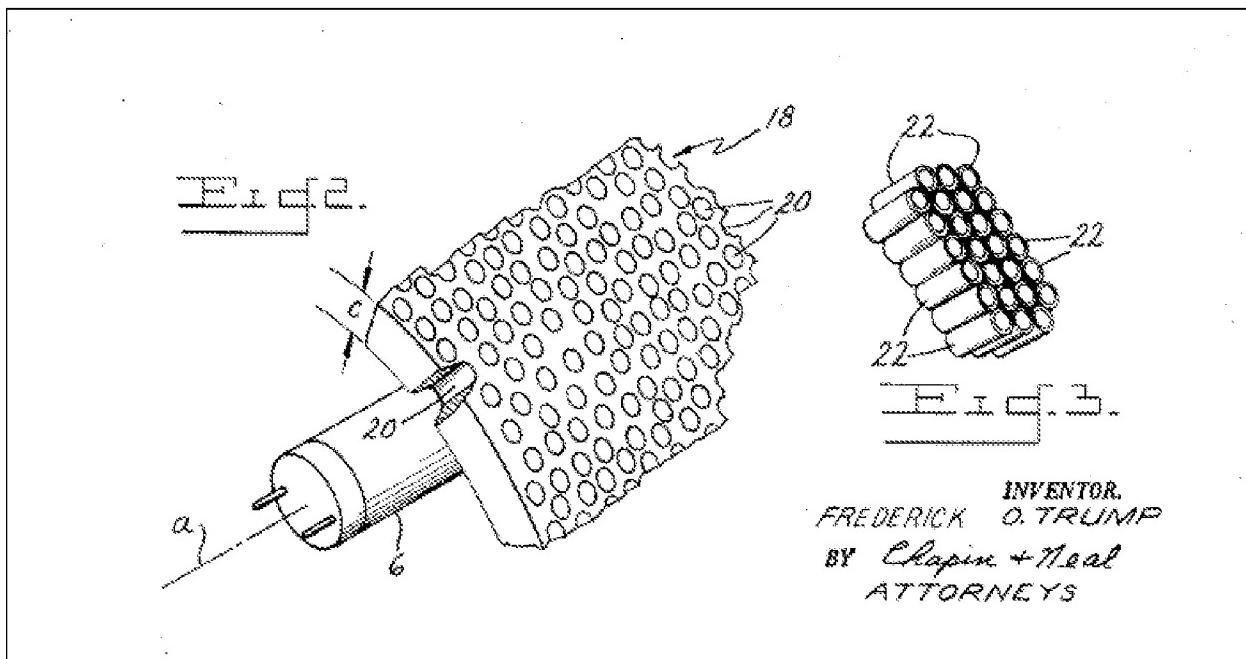
GELBART makes use of light sources which have variable collimation. GELBART makes use of a reflector as shown in Figure 2 as 38 to collimate the light. GELBART in column 3, lines 4-26, describe exposing a printing plate on a rotating drum or mounting printing plates in a holder. Thus, GELBART would lead a worker of ordinary skill in the art to assume the methods of imaging set forth could be performed with respect to a cylindrical surface as set forth in Figure 1 instead of a flat surface when using the collimator set forth in Figure 2.

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TRUMP teaches another form of collimation of light for exposure of a surface to be imaged. The examiner agrees that the actual imaging technique of TRUMP makes use of a collimator positioned inside the cylinder, but the examiner notes that the form of the collimator is still a form well known in the art and the designing of such for a collimator for a light striking the outside of a cylinder would be an adaptation well within the capability of one of ordinary skill in the art once the desire to collimate light to expose the outside of a cylinder was desired.

TRUMP was cited only to show another well known form of collimator in the exposure art.

Figures 2 and 3 from TRUMP are reproduced below to show the general nature of the light collimator used.



Other references cited teach other forms of collimation.

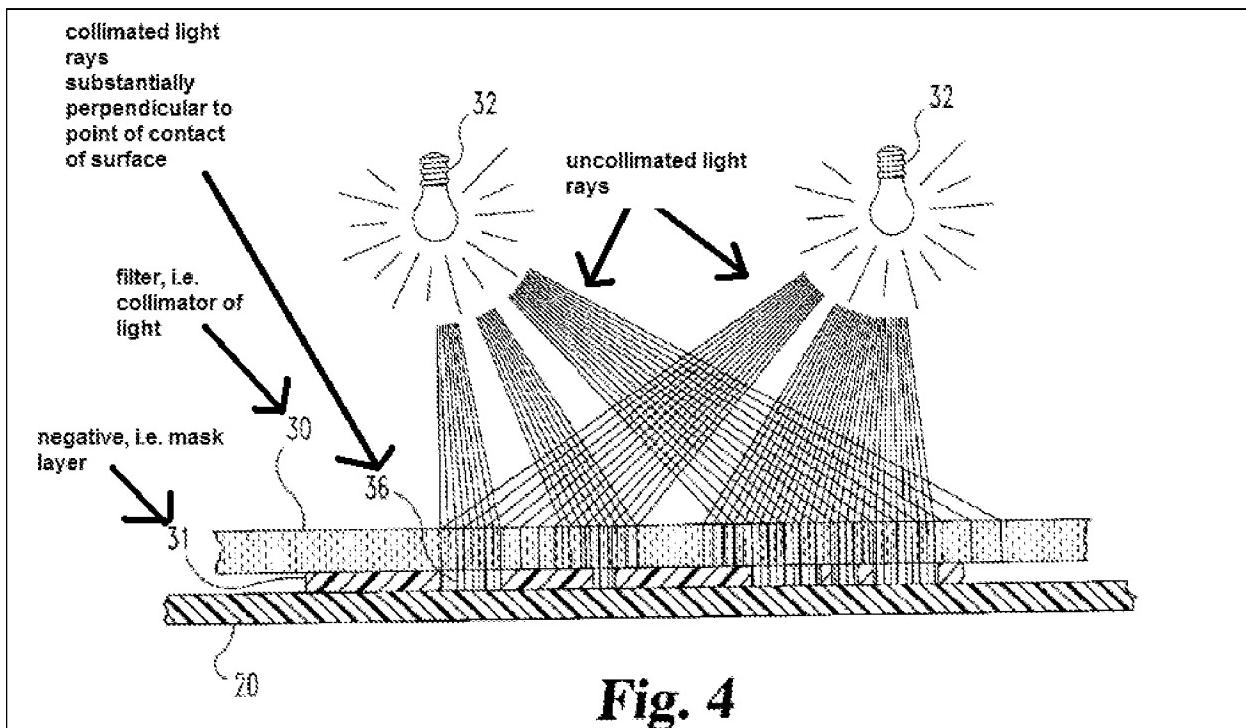
SPEICHER and KAROL reference collimating light to a plane perpendicular to the surface to be imaged via bending the light with a conical mirror either inside a cylinder or outside (which is referenced but not shown). Appellants would allege a narrower reading of

both SPEICHER and KAROL but the outside conical mirror is clearly taught in both SPEICHER and KAROL. Appellants make reference to where the mask is but this does not detract from the general teachings of SPEICHER and KAROL with regard to imaging cylindrical surfaces.

SPEICHER and KAROL sought accuracy of patterned image just as appellants seek a finer image by collimation of light. Thus, the teachings are related to the same problem solved by appellants and understood by PLAMBECK JR with respect to relief plate imaging with a mask.

WIER which appellants argue for the first time other than it was not prior art in their appeal brief is again drawn to a flat surface but makes use of another known form of collimation of light and that is a polarizing filter between light source and mask to form perpendicular rays of light to cure the layer to be imaged. Figure 4 clearly sets forth the filter, i.e. the collimator, to be between light and mask layer. Figure 4 annotated by the examiner for ease of understanding is reproduced

below:



KITAMURA ET AL is cited to show the use of more than one source of actinic radiation to expose a plate is known in the art. Appellants argue because the plate to be exposed is different from that of their invention that the general teachings of KITAMURA ET AL to exposure by multiple sources is not applicable to any other printing plate method. The examiner believes that workers of ordinary skill in the art would not so limit the teachings of KITAMURA ET AL. Whether collimating one source of light or multiple sources of light, the examiner sees this skill to be within that of the ordinary worker in the art once the desire to achieve a faster imaging step via using such multiple sources is known.

The examiner believes appellants have combined prior art methods of fast exposure technique, i.e. using multiple light sources, in a manner known in the art with methods of forming finer images in the relief printing plate art by the use of collimators also known in the art

with a cylindrical plate formation wherein an *in situ* mask is formed which is known in the art to obtain the expected results of faster imaging and finer image as would be expected by workers of ordinary skill in the art. The use of language drawn to “strike the photosensitive printing element at an angle that is substantially perpendicular to the surface of the photosensitive printing element at the point of impact” is addressed by WIER. In column 3, lines 41-49.

The examiner believes that the shifting from a flat surface to a curved surface with respect to exposure with a collimator to achieve a finer image is within the skill of ordinary workers in the art. The examiner believes that the use of collimation to achieve that finer image is understood in the art and that the ability of workers in the art to obtain that fine image is via collimating the light rays such that they strike the point of image substantially perpendicular or in a manner to form a substantially perpendicular image is understood in the printing plate art and the imaging art in general where relief layers are to be formed through a mask is understood in the art. If this is not found so with respect to the prior art cited, then appellants should win their appeal. If this is found so the examiner believes the claims should remain rejected.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Cynthia Hamilton/

Primary Examiner, Art Unit 1795

Conferees:

Cynthia H. Kelly

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1752

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/Gregory L Mills/

Supervisory Patent Examiner, Art Unit 1700